



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: LA2501

Title: Development of a Two Dimensional High Spatial Resolution Storm Surge Simulation Model for Single Processors and Distributed Computing Clusters

Focus Categories: Floods, Models

Keywords: Storm Surge Modeling, Hydrodynamic Model, Rainfall, Parallel Computers, Distributed Clusters

Start Date: 03/01/2001

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Federal Funds: \$9,499

Non-Federal Matching Funds: \$19,653

Congressional District: 06

Principal Investigator:

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Abstract

Coastal areas of Louisiana coast are extremely vulnerable to devastating hurricanes from the Gulf every year. The associated storm surge and severe winds pose an extreme threat to life and property. The goal of this project is to develop a high-resolution storm surge simulation model for assessing the impact of hurricanes. Although the model would be applied to southeast Louisiana, it would not be site specific, and should be applicable to other regions with minimal effort. Special attention would be paid to algorithmic development so that the model would be architecture independent. This would be achieved by developing the model code using the FORTRAN 90 language with High Performance Fortran extensions so that the model could be run on both uni-processor and multiprocessor shared memory or distributed memory systems. The modern computational techniques used for the development of the model would make it robust, efficient and easily customizable for specific locations.

The model would use high spatial resolutions so that flood threat to urban areas can be mapped accurately. The model is also expected to serve as a design and management tool for assessing evacuation procedures and the location of shelters.